

Joint Publication 3-01



Joint Doctrine for Countering Air and Missile Threats



19 October 1999



Report Documentation Page			Form Approved OMB No. 0704-0188	
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>				
1. REPORT DATE 19 OCT 1999	2. REPORT TYPE N/A	3. DATES COVERED -		
4. TITLE AND SUBTITLE Joint Doctrine for Countering Air and Missile Threats			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Chiefs of Staff Washington, DC			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited				
13. SUPPLEMENTARY NOTES The original document contains color images.				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 63
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified		
19a. NAME OF RESPONSIBLE PERSON				

PREFACE

1. Scope

This publication provides the guidance necessary to conceptualize, plan, coordinate, and conduct successful joint operations to counter air and missile threats throughout the range of military operations.

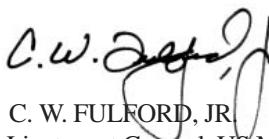
2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine to govern the joint activities and performance of the Armed Forces of the United States in joint operations and provides the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

- a. Doctrine and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.
- b. The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:



C. W. FULFORD, JR.
Lieutenant General, US Marine Corps
Director, Joint Staff

Intentionally Blank

TABLE OF CONTENTS

	PAGE
EXECUTIVE SUMMARY	v
CHAPTER I	
INTRODUCTION	
• General	I-1
• Joint Counterair	I-2
• Changing Threats	I-4
• Defense of North America	I-4
CHAPTER II	
COMMAND AND CONTROL	
• General	II-1
• Command Relationships	II-1
• Multinational Considerations	II-7
• C4I Resources and Requirements	II-7
• C4I Infrastructure	II-7
• Intelligence Requirements	II-8
CHAPTER III	
AIRSPACE CONTROL	
• General	III-1
• Airspace Control and Coordination Procedures	III-1
CHAPTER IV	
OFFENSIVE COUNTERAIR OPERATIONS	
• General	IV-1
• OCA Targets	IV-1
• OCA Operations	IV-2
• OCA Resources	IV-5
• OCA Planning Considerations	IV-6
• Execution of OCA Operations	IV-7
CHAPTER V	
DEFENSIVE COUNTERAIR OPERATIONS	
• General	V-1
• Passive Air Defense	V-2
• Active Air Defense	V-3

Table of Contents

• DCA Planning Considerations	V-4
• Execution of DCA Operations	V-4

APPENDICES

A References	A-1
B Administrative Instructions	B-1

GLOSSARY

Part I Abbreviations and Acronyms	GL-1
Part II Terms and Definitions	GL-3

FIGURES

I-1 Joint Counterair Operations	I-3
II-1 Primary Joint Force Commander Staff Divisions and Responsibilities	II-3
IV-1 Primary Offensive Counterair Missions	IV-3
IV-2 Primary Offensive Counterair Systems	IV-6
V-1 Defensive Counterair Operations	V-1

EXECUTIVE SUMMARY

COMMANDER'S OVERVIEW

- **Discusses Background and Fundamentals of Joint Counterair Operations**
 - **Provides Command and Control Relationships and Key Considerations and Requirements for Joint Counterair Operations**
 - **Discusses Fundamentals for Planning and Executing Offensive Counterair Operations**
 - **Discusses Fundamentals for Planning and Executing Defensive Counterair Operations**
-

Overview of Joint Counterair Operations

Joint counterair operations are executed by all components, using a variety of integrated weapons systems and sensors to counter threats, both before and after launch.

The purpose of the joint counterair mission is to attain a desired degree of air superiority to allow freedom of action and protect the joint force. To execute this mission, joint force commanders (JFCs) integrate the capabilities of each component to conduct offensive and defensive operations. Offensive counterair (OCA) operations seek to dominate the enemy's airspace and prevent the launch of threats, while defensive counterair (DCA) operations defeat enemy air threats after launch. Joint counterair missions may employ aircraft, surface-to-air missiles, surface-to-surface missiles, artillery, special operations forces, or information operations against a variety of threats. These threats include enemy aircraft (manned or unmanned), ballistic missiles, and cruise missiles (air, land, or sea launched).

The degree of air superiority may vary.

Counterair operations usually begin early in the conduct of joint operations, and their effects produce a desired degree of air superiority at the time and place of the JFC's choosing. Air superiority may not totally eliminate air and missile opposition. However, it limits the enemy's ability to conduct air and missile attacks while providing a more favorable environment for joint forces to perform their tasks without prohibitive interference from enemy attacks. Air superiority may vary over time and geography. The degree of air superiority required depends on the overall situation and the JFC's concept of operations.

Counterair operations are both offensive

and defensive.

OCA consists of offensive measures to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems. Ideally, most joint OCA operations will prevent the launch of aircraft and missiles by destroying them and their supporting infrastructure prior to launch. OCA includes attack operations, fighter sweep and escort missions, suppression of enemy air defenses, and electronic warfare.

DCA is all defensive measures designed to detect, identify, intercept, and destroy or negate enemy air and missile forces attempting to attack or penetrate the friendly air environment. DCA employs both active and passive measures to protect US or multinational forces, assets, population centers, and interests.

THE COUNTERAIR FRAMEWORK

OFFENSIVE COUNTERAIR

- ♦ **Attack Operations**
 - Attacks on missile sites, airfields, command and control, infrastructure
- ♦ **Fighter Sweep**
- ♦ **Fighter Escort**
- ♦ **Suppression of Enemy Air Defenses**
- ♦ **Electronic Warfare**

DEFENSIVE COUNTERAIR

- ♦ **Active Defense**
 - Interception of ballistic missiles, cruise missiles, aircraft
- ♦ **Passive Defense**
 - Camouflage and Deception
 - Hardening
 - Reconstitution
 - NBC Facilities
 - Detection and Warning
 - Dispersal

Changes in the lethality and advancement of air and missile threats have made the counterair mission more vital.

Theater plans to counter the air and missile threat must be integrated with national plans to defend North America.

The rapid and continuing proliferation of advanced weapons and technology expands the scope and complexity of attaining air superiority and protecting friendly forces and vital interests. As demonstrated during the 1991 Persian Gulf War, US forces were not immune to a missile threat. The detection capabilities, engagement ranges, mobility, and lethality of air and missile threats have significantly increased.

Adversaries are rapidly gaining access to advanced aircraft and missiles that can directly threaten the United States as well as US forces and interests abroad. **Theater plans and operations should be coordinated and integrated with binational and strategic plans for the defense of North America.** Regardless of where US interests are threatened, US forces must maintain continuous global surveillance, intelligence, and the ability to engage the threat.

Command and Control of Joint Counterair Operations

Unity of effort, centralized planning, and decentralized execution are key considerations.

The growing diversity of air and missile threats requires joint forces to be more responsive, flexible, and integrated in order to effectively counter them. The manner in which JFCs organize their forces directly affects the responsiveness and versatility of joint force operations. **Unity of effort, centralized planning, and decentralized execution are key considerations.**

Designation of the joint force air component commander (JFACC).

The JFC normally designates the joint force air component commander (JFACC) as the supported commander for theater- and/or joint operations area (JOA)-wide counterair. Normally, the JFACC is the Service component commander having the preponderance of air assets and the capability to plan, task, and control joint air operations. The JFACC will generally use centralized control and decentralized execution as the optimum arrangement to respond to air and missile threats.

The area air defense commander (AADC) develops and implements the joint area air defense plan.

The JFC establishes and the area air defense commander (AADC) implements theater- and/or JOA-wide defense priorities through promulgation of a joint area air defense plan. Normally, the AADC is the component commander with the preponderance of air defense capability and the command, control, communications, computers, and intelligence capability to plan, coordinate, and execute integrated air defense operations. The AADC establishes weapons control procedures and measures for all DCA weapons systems and forces.

Right of self-defense.

Total protection may be impossible. All commanders have the authority to use all necessary means and take all appropriate action to protect forces from a hostile act or demonstrated hostile intent.

The airspace control authority develops the airspace control plan.

The JFC normally designates an airspace control authority (ACA), who has overall responsibility for establishing and operating the airspace control system. The ACA develops policies and procedures for airspace control that are incorporated into an airspace control plan (ACP) and promulgated throughout the area of responsibility or JOA. The ACP is implemented through the airspace control order (ACO). All counterair forces are subject to the ACO of the ACA. However, this centralized direction by the ACA does not imply operational control or tactical control (TACON) over any air asset.

The joint force commander apportions component capabilities to the JFACC and/or AADC.

The JFC may apportion component capabilities to the JFACC and/or AADC for counterair missions. The JFC also determines the most appropriate command authority over forces made available. Typically for OCA, air and naval forces provide air sorties TACON, and land forces provide fire support and attack helicopters in direct support. Normally for DCA, air sorties are provided TACON, while surface-based active defense forces are provided in direct support.

Intelligence preparation of the battlespace (IPB) begins in peacetime. It helps commanders understand the enemy and select appropriate courses of action.

Intelligence preparation of the battlespace (IPB) plays a critical role in planning, deploying, employing, and sustaining joint counterair operations. Intelligence provides information on target employment, deployment, enemy intentions, likely avenues of movement, and other key factors. Anticipation of enemy actions and real-time intelligence dissemination are vital to countering enemy air and missile threats.

Airspace control for counterair operations.

The primary goal of airspace control is to enhance the effectiveness of air, land, maritime, and special operations forces in accomplishing the JFC's objectives. Airspace control should maximize the effectiveness of combat operations without adding undue restrictions and with minimal adverse impact on the capabilities of any Service or functional component.

Offensive Counterair Operations

OCA operations destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems. **OCA targets should be attacked or neutralized on the surface or as close to their source as possible**, and these operations are normally conducted over enemy territory.

Offensive counterair (OCA) missions are normally preplanned

but may be immediate.

Preplanned OCA missions rely on continuous and accurate intelligence for targets expected at particular locations and times. The air tasking order (ATO) matches targets with capabilities and forces made available to the JFACC on a given day.

Immediate missions are conducted against unexpected mobile and time-sensitive targets and require rapid action. Minutes often define the timeline when these targets are vulnerable to attack.

Offensive operations within a land area of operations (AO) short of the fire support coordination line (FSCL) are controlled by the supported land force commander. Beyond the FSCL, coordination and restrictive measures are used to avoid conflicting or redundant operations. Forces attacking targets beyond the FSCL must coordinate with all affected commanders to allow necessary reaction to avoid fratricide. Generally the joint targeting and ATO processes provide sufficient coordination for preplanned targets beyond the FSCL. However, certain time-sensitive targets and other targets of opportunity may be acquired and must be attacked quickly. Although land force commanders establish an FSCL as a permissive fire support coordination measure, the coordination of actual attacks with all affected commanders is important to prevent fratricide. Under exceptional circumstances, the inability to perform such coordination will not preclude attacking the target, with the commander of the attacking force assuming the increased risk of fratricide.

OCA planning begins with the IPB.

The JFACC is normally responsible for the theater- and/or JOA-wide OCA planning process. Land, naval, and amphibious force commanders are responsible for

synchronizing the timing and effects of attack operations with surface maneuver within their designated AOs. Commanders should use the IPB to find appropriate targets, match those targets with JFC and/or JFACC counterair objectives, task assets to attack the targets, and assess the effectiveness of the attacks. The IPB operates continuously to keep all commanders updated with the most accurate and reliable data. Three important aspects of the OCA planning process should be setting clearly defined objectives, determining targets and/or effects to fulfill those objectives, and maintaining unity of effort.

Centralized planning does not preclude self-protect measures.

The preferred method of countering air and missile threats is to use OCA operations to destroy or disrupt them prior to launch. Attack operations may be performed by fixed- or rotary-wing aircraft, surface-to-surface fires, special operations forces, or ground forces. **Centralized OCA planning** is fundamental to achieving objectives, but **does not preclude individual components and units from taking actions to accomplish their missions and protect their forces.**

Defensive Counterair Operations

Defensive counterair (DCA) operations consist of

passive air defense

DCA operations employ a mix of weapon and sensor systems from all components. **The goal of DCA operations, in concert with offensive operations, is to provide a secure area from which joint forces can operate.** The JFC establishes and the AADC implements air and missile defense priorities through promulgation of an area air defense plan.

Passive air defense provides individual and collective protection of friendly forces and critical assets. Passive air defense is the responsibility of commanders at all levels of the joint force. The AADC should provide timely attack warning, which initiates many of the passive defense measures. General warnings indicate that attacks are imminent or have occurred. Specific warnings signify that specific units or areas are in danger of attack. Passive defense measures include camouflage, concealment, deception, hardening, reconstruction, nuclear, biological, and chemical defensive equipment and facilities, redundancy, detection and warning systems, mobility, and dispersal.

and active air defense.

Active air defense is direct defensive action taken to destroy, nullify, or reduce the effectiveness of hostile air and missile attacks. These actions protect assets and forces by negating the threat while in flight and are subject to the weapons control procedures established by the AADC. Active air defense measures include layered defense-in-depth against air and missile threats through multiple engagement opportunities. Integrated detection, identification, assessment, interception, and engagement of air and missile threats is necessary to protect friendly forces and vital interests.

Active air defense measures.

Active air defense measures include area defense, which uses a combination of weapon systems to defend broad areas; **point defense** to protect limited areas (normally vital elements or installations); **and self-defense**, where friendly forces use organic weapons and systems. Active measures may also include high value airborne asset (HVAA) protection. HVAA protection uses fighter aircraft to protect critical airborne platforms, such as the Airborne Warning and Control System.

DCA planning considerations.

DCA planning begins during peacetime with the IPB and the development of an area air defense plan. Continuous surveillance is required for early detection, identification, and prediction of attack areas of air and missile threats. The integration of active air defense systems provides efficient control and exchange of essential near real time information to all defensive forces and resources. The development of plans and communications architecture to warn forces and cue appropriate systems to threats is critical.

Rules of engagement and identification requirements.

The employment of defensive weapon systems requires **early identification of friendly, neutral, or hostile aircraft and missiles** to maximize beyond-visual-range engagement and avoid fratricide. This requires clearly understood rules of engagement (ROE). The problem of distinguishing friendly, neutral, and enemy assets while employing various weapon systems against the latter is a highly complex task for some threats. However since ballistic missiles have a distinct flight profile, ROE for this threat should allow immediate engagement. The AADC and ACA establish procedures within the airspace control system to positively identify all airborne assets,

reduce delays in operations, and prevent fratricide. **Positive identification (ID) of tracks is normally the preferred method of operation.** In the absence of positive ID, procedural ID is used, which employs previously established and promulgated airspace control measures. Generally, some combination of positive and procedural ID will be used.

Defense in depth for DCA operations.

Early warning of hostile air and missile attacks is vital for a layered defense. DCA operations attempt interception of intruding enemy aircraft and missiles as early as possible. Although DCA operations are reactive in nature, they should be conducted as far from the friendly operational area as feasible. To maximize destruction of enemy air and missile threats, the engagement process must continue throughout the threat's approach to, entry into, and departure from the friendly operational area.

Command and control of interceptors.

Interceptor missions are tasked by appropriate command and control agencies in response to the detection and assessment of a hostile, potentially hostile, or unknown target. **Aircraft may remain under the control of the initiating control agency;** however, this control can be transferred to a control agency in an adjacent sector or to the interceptor when conditions permit.

Surface-to-air-weapons.

Surface-to-air weapons offer high firepower and rapid responsiveness. Their effectiveness requires a reliable, interoperable interface with aircraft operations. Integration of these capabilities strengthens mutual support and provides the best overall defensive coverage.

Weapons control status for surface-to-air units.

Weapons control of surface-to-air units is expressed as a status declared for a particular area and time. The “weapons free” order permits weapons systems to fire at any target not positively recognized as friendly. The “weapons tight” order allows weapons systems to fire only at targets recognized as hostile. Finally, the “weapons hold” order allows weapons systems to fire only in self-defense or in response to a formal order.

Fire control orders for surface-to-air units.

Fire control orders are given to direct or to inhibit firing by surface-to-air weapons units based on rapidly changing battle situations. The “engage” order directs or authorizes units and weapon systems to fire on a designated target. The “cease engagement” order directs units to stop the firing sequence against a designated target. Finally,

“hold fire” is an emergency order used to stop firing. Missiles already in flight should be prevented from intercepting, if technically possible.

CONCLUSION

The purpose of the counterair mission is to attain a desired degree of air superiority to allow freedom of action and protect the force. The JFC should integrate the capabilities and forces from all components to achieve this goal. Air superiority enables and enhances joint operations in all dimensions by limiting the enemy’s ability to threaten the United States, its forces, or its national interests.

Intentionally Blank

CHAPTER I

INTRODUCTION

"If we lose the war in the air, we lose the war and we lose it quickly."

Field Marshal Bernard Montgomery

1. General

To protect the United States, its forces, and its vital interests from air and missile threats, combatant commanders, Commander of US Element North American Aerospace Defense Command (NORAD), and subordinate joint force commanders (JFCs) integrate the capabilities of each component to gain and maintain air superiority. Air superiority delivers a fundamental benefit to the joint force. It prevents adversaries from interfering with operations of air, space, or surface forces and assures freedom of action and movement. Control of the air is a critical enabler for the joint force because it allows US forces both freedom from attack and freedom to attack. Using both defensive and offensive operations, the JFC employs complementary weapon systems and sensors to achieve protection of the force. These operations not only protect against attack, but also ensure that US forces can strike potential threats prior

to launch. Unity of effort is vital for countering threats with an engagement window of perhaps a matter of minutes. In this time-sensitive environment, the JFC must ensure that component systems are integrated and interoperable to achieve air superiority.

The degree of control may vary from air supremacy to local air superiority, depending on the overall situation and the JFC's concept of operations. It may be needed for different lengths of time, ranging from a few minutes to the duration of the conflict, and also vary with geographic areas. The JFC normally seeks to gain and maintain control of the air environment as quickly as possible to allow friendly forces to operate without prohibitive interference from enemy air threats. US military forces must be capable of countering the air and missile threat from initial force projection through redeployment of friendly forces. These threats include enemy aircraft (manned or unmanned), ballistic missiles, and



Air superiority is essential for the success of most military operations.

cruise missiles (air, land, or sea launched). The proliferation of theater missiles and advances in missile technologies, coupled with weapons of mass destruction (WMD), make theater missiles a particularly difficult and dangerous threat. Joint theater missile defense is an integral part of counterair operations.

2. Joint Counterair

Air superiority is achieved through the counterair mission, which integrates both offensive and defensive operations from all components to counter the air and missile threat (see Figure I-1). These operations may use aircraft, surface-to-surface and surface-to-air missiles (SAMs), air-to-surface missiles, special operations forces (SOF), and elements

structures and systems as close to their source as possible. This enables friendly use of otherwise contested airspace, enhances freedom of action, and reduces the enemy's air and missile threat to friendly forces. The goal of OCA operations is to prevent the launch of aircraft and missiles by destroying them and their overall supporting infrastructure prior to employment. These operations range throughout enemy territory and are generally conducted at the initiative of friendly forces. OCA consists of attack operations, fighter sweep, escort, suppression of enemy air defenses, and electronic warfare (EW).

b. Defensive Counterair (DCA). DCA is all defensive measures designed to detect, identify, intercept, and destroy or negate enemy forces attempting to attack or



Joint counterair integrates capabilities from all components.

of information operations to counter the threat. Joint forces must be integrated to exploit the mutually beneficial effects of offensive and defensive operations to destroy, neutralize, or minimize air and missile threats, both before and after launch.

a. Offensive Counterair (OCA). OCA is offensive operations to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting

penetrate the friendly air environment. These operations include both active and passive air defense measures. The basic defense criteria is normally to detect, identify, intercept, and destroy the threat. Since DCA operations employ weapon and sensor systems within the same airspace, these operations are subject to the weapons control procedures and measures of the area air defense commander (AADC) and integrated with the joint force air component

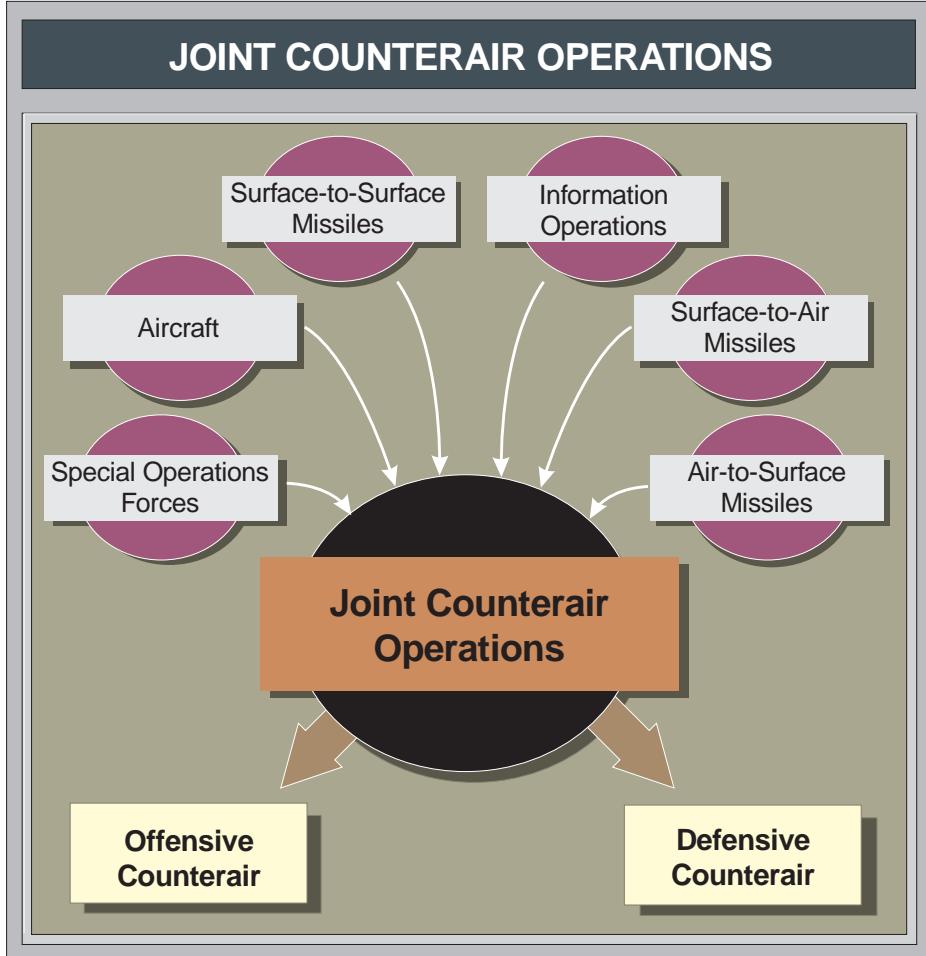


Figure I-1. Joint Counterair Operations

commander's (JFACC's) overall plan for the conduct of air operations.

- **Active Air Defense.** Active air defense is **direct defensive action taken to destroy, nullify, or reduce the effectiveness of hostile air and missile threats against friendly forces and assets.** It includes the use of aircraft, air defense weapons, EW, and other available weapons. Integration of these weapon systems will allow for a defense in depth, using multiple engagements.

- **Passive Air Defense.** Passive air defense consists of **all measures, other than active air defense, taken to minimize the effectiveness of hostile air and missile threats against friendly forces and assets.** These measures include camouflage, deception, dispersion, and the use of protective construction. Passive air defense improves survivability by reducing the likelihood of detection and targeting and also minimizing the potential effects of surveillance and attack.



Rapid proliferation of theater missiles expands the scope and complexity of protecting friendly forces and vital interests.

3. Changing Threats

Enemy air and missile threats continue to grow in numbers and capabilities. The rapid proliferation of theater missiles (TMs), including cruise missiles, theater ballistic missiles, and air-to-surface missiles, expands the scope and complexity of protecting friendly forces and vital interests. As demonstrated during the 1991 Persian Gulf War, US forces were not immune to a missile threat.

Other trends also complicate the counterair mission. **The detection capabilities, engagement ranges, mobility, and lethality of enemy SAM systems and fighter aircraft have significantly increased.** Cruise missiles and unmanned aerial vehicles (UAVs) present elusive targets and will remain difficult to detect, identify, and engage. Finally, the **widespread proliferation of WMD** (paired with aircraft, cruise missiles, or theater ballistic missiles) greatly increases the importance of employing a robust defense for US forces and assets which impact US national security interests.

4. Defense of North America

Adversaries are rapidly gaining access to advanced aircraft and missiles that can directly threaten the United States as well as US forces and interests abroad. Although this publication focuses on countering air and missile threats in an area of responsibility (AOR) and/or joint operations area (JOA), some of the concepts, activities, and capabilities discussed also apply to the defense of North America. **Theater plans and operations should be coordinated with binational and strategic plans for North American defense.** Regardless of where US interests are threatened, US forces must maintain continuous global surveillance, intelligence, and the ability to engage the threat. The Commander in Chief, NORAD (CINCNORAD) is tasked to provide aerospace warning for North America. Aerospace warning consists of the detection, validation, and warning of an attack against North America whether by aircraft, missiles or space vehicles. The Commander in Chief, US Space Command (USCINCSPACE) supports NORAD by providing the missile

warning and space surveillance necessary to fulfill the US commitment to the NORAD agreement, and provides integrated tactical warning and/or attack assessment of space, missile, and aircraft attacks on the continental United States and Alaska should NORAD be unable to accomplish the assessment mission. If offensive operations are necessary,

USCINCSpace will provide surveillance and warning to the appropriate combatant commanders, CINC NORAD, or the Commander, US Element NORAD, whose forces will conduct offensive operations.

Refer to JP 3-01.1, “Aerospace Defense of North America,” for further discussion.

OFFENSIVE COUNTERAIR IN THE DESERT

Each of the pilots of four F-15Cs from the 58th Tactical Fighter Squadron was flying his first combat mission on 17 January [1991], sweeping for Iraqi fighters. Around Baghdad, “The whole ground was red with Triple-A fire as far as you could see,” recalled one pilot. The four F-15s were inbound toward Mudaysis airfield when two Iraqi Mirage F-1 fighters took off and headed for them at low level. Using the look down, shoot down radar capability, one F-15 fired an AIM-7 radar-guided missile and saw the F-1 explode. The Iraqi wingman, evidently startled by this disaster, created an even greater one for himself when he turned right and dove straight into the desert floor.

SOURCE: 58th TFS Unit History
cited in DOD Final Report to Congress,
Conduct of the Persian Gulf War, April 1992

Intentionally Blank

CHAPTER II

COMMAND AND CONTROL

"Our superiority in precision munitions, stealth, mobility and command, control, communications, and computers proved to be decisive force multipliers."

**General H. Norman Schwarzkopf, USCINCCENT
1991**

1. General

The growing capabilities of air and missile threats (speed, range, accuracy, stealth, lethality) requires joint forces to be more responsive, flexible, and integrated in order to effectively counter them. The manner in which JFCs organize their forces directly affects the responsiveness and versatility of joint force operations. The first principle in joint force organization is that the JFCs organize forces to accomplish the mission based on the JFC's vision and concept of operations. **Unity of effort, centralized planning, and decentralized execution are key considerations.** Unity of effort is necessary for effectiveness and efficiency. Centralized planning is essential for controlling and coordinating the efforts of all available forces. Decentralized execution is essential to generate the tempo of operations required and to cope with the uncertainty, disorder, and fluidity of combat. **Tasking forces is situationally dependent** and normally tailored by the JFC to enable effective spans of control, responsiveness, tactical flexibility, and protection.

2. Command Relationships

The JFC organizes forces to best accomplish the mission, assigns responsibilities, and establishes supported and supporting relationships and any necessary coordinating instructions. The JFC establishes guidance and target priorities based on the concept of the operation and after considering theater- and/or JOA-wide

priorities along with priorities within land and naval areas of operations (AOs). The JFC's guidance and target priorities will be executed throughout the theater and/or JOA and be fully implemented by all subordinate commanders.

The JFACC is normally the supported commander for counterair. As such, the JFACC plans, organizes, and executes counterair operations theater- and/or JOA-wide. In accordance with JFC guidance and priorities, the JFACC should determine the priority, timing, and effects of counterair fires throughout the theater and/or JOA. Once the JFC designates a land or naval AO, the land and naval force commanders are the supported commanders within these AOs. Within their designated AOs, land and naval force commanders synchronize maneuver, fires, and interdiction. To facilitate this synchronization, such commanders have the authority to designate the target priority, effects, and timing of fires within their AOs. Within the joint force theater and/or JOA, all missions must contribute to the accomplishment of the overall objective. Synchronization of efforts within land or naval AOs with theater- and/or JOA-wide operations is of particular importance. To facilitate synchronization, the JFC establishes priorities that will be executed throughout the theater and/or JOA, including within the land and naval force commanders' AOs. In coordination with land or naval force commanders, the JFACC has the latitude to plan and execute JFC-prioritized counterair operations and attack targets within land and naval AOs. The JFACC must coordinate counterair operations in order to avoid adverse

effects and fratricide. If counterair operations would have adverse effects within a land or naval AO, then the JFACC must either readjust the plan, resolve the issue with the appropriate component commander, or consult with the JFC for resolution.

a. **Joint Force Commander.** The JFC exercises combatant command (command authority) or operational control (OPCON) over assigned or attached forces to ensure unity of effort to counterair and missile threats. The JFC provides authoritative direction to subordinate commanders on objectives, priorities, missions, and apportionment of joint capabilities and forces. Primary responsibilities of the JFC as they apply to joint counterair include the following.

- Develop and maintain a system to unify the employment of subordinate forces in carrying out assigned counterair missions.
- Develop and produce joint operation plans for joint counterair and airspace control or delegate authority to subordinate commanders.
- Establish appropriate command relationships for the component commanders.
- Define and assign both operational areas (to include JOAs) within which a joint task force will operate and AOs for land and naval force commanders.
- Establish plans, policies, programs, priorities, and overall requirements for intelligence activities.
- Assign tasks, functions, and responsibilities to, and direct coordination among, the subordinate commands to ensure unity of effort in accomplishing joint counterair missions.

- Establish, coordinate, and disseminate rules of engagement (ROE) to all subordinate commanders.

b. **JFC's Staff.** The JFC's staff assists the JFC in the decision making and execution process. **The staff's sole function is command support, and its only authority is delegated to it by the JFC.** The staff plans, monitors, advises, and coordinates the responsibilities of the JFC listed above. The JFC has the authority and latitude to organize the staff and assign responsibilities to ensure unity of effort and accomplishment of assigned missions (to include joint counterair operations). The composition of the staff normally reflects the composition of the joint force to ensure those responsible for employing joint forces have thorough knowledge of total force capabilities, needs, and limitations. Normally, **each staff division is responsible for a specific area and is required to coordinate its actions, planning, and progress with other concerned divisions and agencies within the command.** The primary staff divisions and some of their main responsibilities are shown in Figure II-1 and included below.

• **Intelligence Directorate (J-2).** J-2 focuses on identifying enemy centers of gravity and provides timely, accurate intelligence needed for planning and executing joint operations. J-2 ensures the availability of reliable intelligence and timely indications and warnings, AOR- and/or JOA-wide, for all components and allies. **J-2 participates in planning and directing, collecting, processing and exploiting, analyzing and producing, and disseminating and integrating intelligence on the adversary's air and missile threats.** It coordinates intelligence collection and reporting from all sources to disclose the adversary's air and missile locations, activities, capabilities, and intentions as

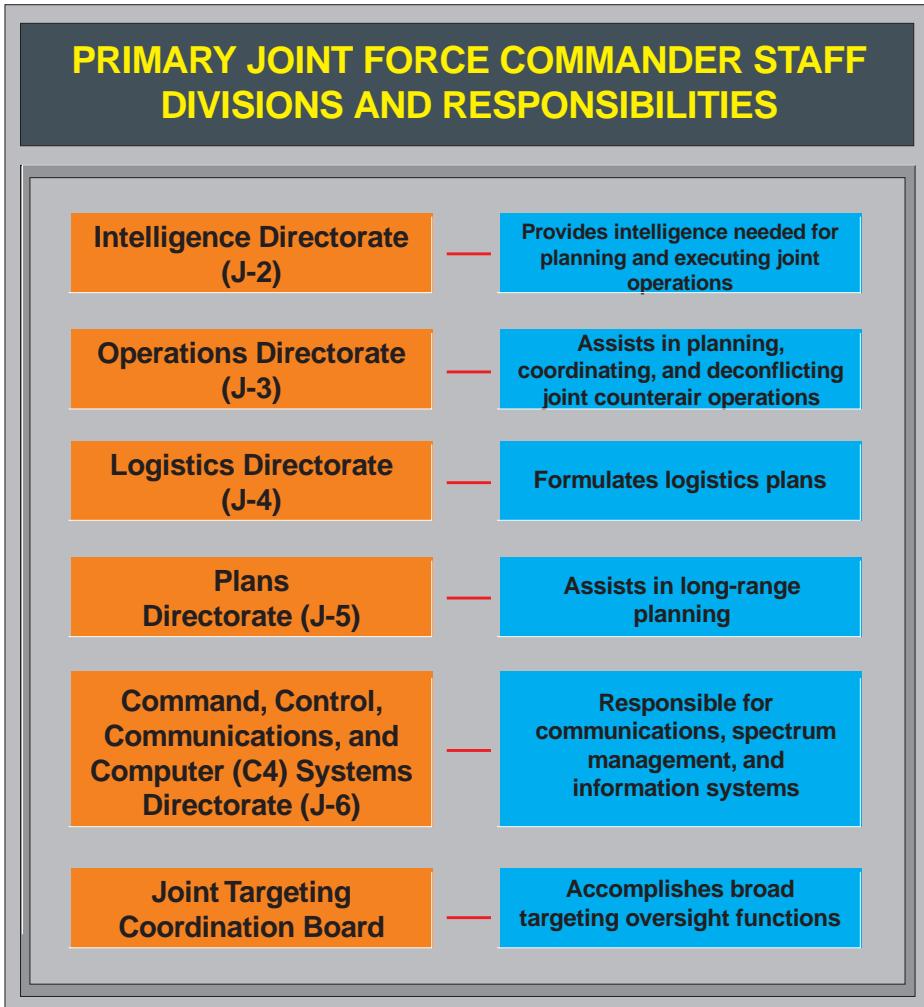


Figure II-1. Primary Joint Force Commander Staff Divisions and Responsibilities

quickly as possible. J-2 will operate the joint intelligence center or joint intelligence support element, as appropriate, for the JFC. J-2 ensures that the intelligence needs of the command and subordinate commands are met.

- **Operations Directorate (J-3).** J-3 assists the JFC in coordinating and deconflicting the execution of joint counterair operations. Its work begins with initial planning and continues through the integration and coordination

of counterair operations with all components. J-3 may also assist in coordinating long-range or future planning responsibilities. J-3 will operate the Joint Operations Center for the JFC.

- **Logistics Directorate (J-4).** J-4 formulates logistics plans for the JFC. It coordinates and supervises supply, maintenance, repair, evacuation, transportation, construction, and other related logistic activities. J-4 advises the JFC on logistic support required for

countering the air and missile threat. It formulates policies to ensure effective logistic support for all forces in the command.

- **Plans Directorate (J-5).** J-5 assists the JFC in long-range planning. **Long-range planning includes the formulation of plans and planning considerations required to counter air and missile threats.** J-5 planning encompasses campaign, special weapons, and joint operation plans. J-5 may also conduct simulations and analyses of the air and missile threat (in concert with J-2 and J-3) to assist the JFC in plans preparation.
- **Command, Control, Communications, and Computer Systems Directorate (J-6).** J-6 develops, coordinates, and disseminates the JFC's theater- and/or JOA-wide communications, spectrum management, tactical communications, and management of information systems plans and procedures. In concert with J-3, J-6 implements measures to protect and ensure timely information and decision support services for the JFC and staff.
- **Joint Targeting Coordination Board (JTCB).** The JFC may establish and define the role of a JTCB to accomplish broad targeting oversight functions. **Functions of the JTCB may include, but are not limited to, coordinating targeting information and providing general targeting guidance and priorities.** To avoid conflicting operations, the JTCB may also maintain a complete list of restricted targets and areas where SOF operate. If established, the JTCB is normally comprised of representatives from the joint force staff, all components and, if required, component subordinate units.

Refer to JP 3-0, "Doctrine for Joint Operations," for more information concerning the functions of the JTCB.

c. Joint Force Air Component Commander. The JFC will normally designate a JFACC to integrate the capabilities and command and control (C2) of joint air assets. Normally, the JFACC is the Service component commander having the preponderance of air assets and the capability to plan, task, and control joint air operations. The need for a JFACC is based on the JFC's overall mission, concept of operations, missions and tasks assigned to subordinate commanders, forces available, duration and nature of joint air operations desired, and the degree of unity of C2 of joint air operations required. **The functions and responsibilities of the JFACC, AADC, and airspace control authority (ACA) must be integrated to ensure that OCA and DCA operations and airspace control are synchronized. The responsibilities of the JFACC, AADC, and ACA are interrelated and are normally assigned to one individual, but they may be assigned to two or more individuals when the situation dictates. Based on the situation, if the JFC decides not to assign the JFACC, AADC, or ACA as one individual, then close coordination between all three positions is essential.**

Since the attainment of air superiority is normally an AOR- and/or JOA-wide priority, **the JFC normally designates the JFACC as the supported commander for theater- and/or JOA-wide counterair operations.** The JFACC will generally use centralized control and decentralized execution as the optimum arrangement to respond to air and missile threats.

The JFC assigns the JFACC's authority and responsibilities. They normally include, but are not limited to, joint counterair planning, coordinating, allocating, and tasking

based on the JFC's concept of operations and air apportionment decision. Other responsibilities of the JFACC relating to joint counterair operations include the following.

- Develop, coordinate, and integrate the joint counterair plan with operations of other components for JFC approval.
- Make an air apportionment recommendation to the JFC, after consulting with other component commanders, which includes counterair

- Perform the duties of the ACA when directed by the JFC.

A joint air operations center (JAOC) normally functions as the JFACC's principal operations center. It links with national and theater sensors, intelligence, communications, and component operations centers. The success of the JAOC rests on the expertise of component liaisons such as the battlefield coordination detachment, naval and amphibious liaison element, Marine Liaison Officer, and the special operations



Successful counterair operations require coordination, integration, and deconfliction with other component operations.

(OCA and DCA), strategic attack, interdiction, and close air support.

- Provide centralized direction for allocating and tasking joint counterair capabilities and forces made available by the JFC.
- Provide information operations (IO) strategies to neutralize enemy air and missile threats while preserving friendly offensive and defensive capability.
- Perform the duties of the AADC when directed by the JFC.

liaison element (SOLE). These **liaison elements enhance coordination between the JFACC and other component commanders.** They represent their respective component commander on time-sensitive and critical issues. The component operations centers and liaison elements facilitate the planning, coordination, integration, and deconfliction of all joint counterair operations with other component operations.

Refer to JP 3-56.1, "Command and Control for Joint Air Operations," for more details concerning the employment of liaison elements.

d. Area Air Defense Commander. The JFC normally designates an AADC with the authority to plan, coordinate, and integrate overall joint force DCA operations. Normally, the AADC is the component commander with the preponderance of air defense capability and the command, control, communications, computers, and intelligence (C4I) capability to plan, coordinate, and execute integrated air defense operations. When a JFACC is designated, the JFACC will normally be assigned to function as AADC since these two functions are interrelated. The JFC will also define the support relationship between the AADC and supporting commanders. Components will provide representatives, as appropriate, to the AADC's headquarters to provide specific weapon systems expertise as well as broader mission expertise. **With the support of Service or functional component commanders, the AADC develops, integrates, and distributes a JFC-approved joint area air defense plan.** A critical feature of a joint, integrated plan is a reliable, consistent, and common operational picture (i.e., a fused and correlated air, ground, and maritime picture) available in all supporting C2 facilities. This plan should include IO strategies for counterair. The plan should also contain detailed weapons control and engagement procedures that are integral to all joint counterair operations. The plan should be closely integrated with the airspace control plan (ACP), and the AADC establishes weapons control procedures and measures for all DCA weapons systems and forces. However, this does not restrict commanders' authority to use all necessary means and take all appropriate actions to protect their forces from a hostile act or demonstrated hostile intent. Primary responsibilities of the AADC include the following.

- Develop, integrate, and distribute a JFC-approved joint area air defense plan.
- Develop and execute, in coordination with the joint force J-2, J-3, and J-6, a

detailed plan to disseminate timely air and missile warning and cueing information to components, forces, allies, coalition partners, and civil authorities, as appropriate.

- Develop and implement identification and engagement procedures that are appropriate to the air and missile threats.
- Ensure timely and accurate track reporting among participating units to provide a consistent common operational picture.
- Perform the duties of the ACA when directed by the JFC.
- Establish sectors or regions, as appropriate, to enhance decentralized execution of DCA operations.

e. Airspace Control Authority. The JFC normally designates an ACA who **has overall responsibility for establishing and operating the airspace control system.** The ACA also develops policies and procedures for airspace control that are incorporated into an ACP and promulgated throughout the theater. A key responsibility of the ACA is to provide the flexibility needed within the airspace control system to meet contingency situations that necessitate rapid employment of forces. The ACA coordinates through the ACP the use of airspace, including integration with the host nation and deconfliction of user requirements. The ACA must be able to rapidly implement airspace control measures in the dynamic counterair environment to enhance freedom of action of components while preventing fratricide. The ACP is implemented through the airspace control order (ACO). **All forces affecting joint air operations are subject to the ACO.** However, this centralized direction by the ACA does not imply OPCON or tactical control (TACON) over any air asset.

Refer to JP 3-52, “Doctrine for Joint Airspace Control in the Combat Zone,” and JP 3-56.1, “Command and Control for Joint Air Operations,” for more details concerning the ACA, JFACC, and AADC.

f. Component Commanders. The JFC may apportion component capabilities and/or forces to the JFACC or AADC to support theater- and/or JOA-wide counterair missions. The JFC determines the most appropriate command authority over forces made available to conduct OCA and DCA. Typically for OCA, air and naval forces provide air sorties TACON, and land forces provide fire support and attack helicopters in direct support. For forces made available for DCA, air sorties are normally provided TACON, while surface-based active defense forces are provided in direct support. Regardless of the command relationship, all active defense forces are subject to the ROE, airspace, weapons control measures, and fire control orders established by the JFACC, AADC, and/or ACA and approved by the JFC. Additionally, the AADC will be granted the necessary command authority to deconflict and control engagements and to exercise real-time battle management.

3. Multinational Considerations

Most joint operations are conducted within the context of an alliance or coalition. Each multinational operation is unique. The international situation, along with the perspectives, motives, and values of each ally or coalition member, may vary. **The JFC should evaluate key considerations and differences involved in planning, coordinating, and conducting counterair operations in a multinational environment.** Agreement on objectives, threats, and a clearly defined, responsive, and interoperable C2 structure are crucial to effective multinational operations. The JFC must be prepared to negotiate with allies and coalition partners when planning and developing ROE,

airspace control measures, weapon control measures, and other appropriate areas. All critical forces and geopolitical areas should receive adequate protection from air and missile threats. Sharing intelligence and warning information is also vital to ensuring unity of effort.

Refer to JP 3-0, “Doctrine for Joint Operations,” and JP 3-16, “Joint Doctrine for Multinational Operations,” for further detail concerning multinational operations.

4. C4I Resources and Requirements

Effective joint counterair operations require a reliable C4I capability that integrates air-, surface-, subsurface-, and space-based assets. **C4I resources detect, identify, and track threats to warn and cue defensive assets as well as provide accurate launch and impact points.** These resources should be capable of rapidly exchanging information, interfacing with components, and displaying a common operational picture to all components of concern. The information flow should support the chain of command and be as complete, secure, and as near real time as possible. These systems should be flexible enough to allow redirection of available forces. C4I architecture among Service and functional components, and among all levels of command, should also be survivable, interoperable, flexible, and redundant to the maximum extent possible.

5. C4I Infrastructure

The C4I infrastructure should consist of interoperable systems that provide complete coverage against a diverse threat array. These systems should be connected to commanders at appropriate decision and execution levels to integrate forces and missions. The systems expedite C2 functions through rapid, reliable, flexible, and secure exchange of information throughout the chain of command. The C4I



Reliable C4I capability is required to detect, identify, and track threats to warn and cue defensive assets.

architecture provides the timely intelligence and operational information needed to plan, employ, coordinate, deconflict, execute, and sustain joint counterair operations. **Effective C4I systems help commanders fuse geographically separated offensive and defensive operations into a focused effort.** These systems also facilitate the integration of counterair with other joint operations via rapid communications among commanders, staffs, sensors, weapon systems, and supporting agencies.

"When we started our deployment, we had only the most rudimentary communications infrastructure in Southwest Asia and the challenge of distance was daunting. Thanks to good planning and our understanding of the importance of satellites, we quickly and smoothly transitioned to a mature tactical theater network."

General Colin L. Powell, CJCS
December 1990

6. Intelligence Requirements

Target development and analysis of air and missile threats normally begins during

peacetime. **Intelligence plays a critical role in planning, deploying, employing, and sustaining joint counterair operations.** Time-phased intelligence, collected on areas over periods of time, also provides valuable information on target employment, deployment, potential intentions, likely avenues of movement, and other key factors. The effectiveness of counterair operations requires the timely collection, analysis, production, and dissemination of reliable and accurate intelligence. **Intelligence preparation of the battlespace (IPB) is an analytic methodology which helps the commander understand the enemy and select an appropriate course of action.** IPB begins in peacetime but is a continuing process that is conducted and updated throughout the course of operations. It drives collection plan development and identifies sensor types, collection windows, and areas of coverage. IPB aids the target development process by identifying how and where counterair operations can affect the enemy's capabilities and operations. It can also reduce uncertainties concerning the enemy, environment, and terrain, and presents information via data bases and in graphic form. The development and refinement of a

data base on threat capabilities and enemy operational employment proficiency must be a continuous process. This data base supports identification of enemy centers of gravity, capabilities, and vulnerabilities. It also helps to formulate objectives, avenues of approach and attack, and courses of action by aiding the process of locating and identifying air and missile threats and their associated C4I systems.

a. Intelligence should be tailored to support real-time operations as well as deliberate planning. Target development, weapon selection, execution, and combat assessment depend on well-integrated collection and analysis processes. Collection systems must be capable of being rapidly redirected to support the targeting of time-sensitive targets. Anticipation of enemy actions gained through intelligence and real-time dissemination is key to countering enemy air and missile threats. Integrating weather observations and forecasts with intelligence may affect estimates of friendly and enemy courses of action (i.e., their ability or inability to employ in certain weather conditions).

b. The joint force will have a number of intelligence analysis centers involved in providing all-source intelligence in support of counterair operations. These include the joint intelligence center or joint intelligence support element supporting the joint force J-2. Individual components also have supporting intelligence elements. The JAOC's combat intelligence division provides threat assessment and status as well as targeting support for planning and executing air operations at the JFACC level. The intelligence division supports the execution of counterair operations by monitoring ongoing missions, responding to the fluid battlespace situation, and providing near real time intelligence from all sources. It provides indications, warning, and situation intelligence to designated users throughout the theater and/or JOA. It also ensures that preplanned joint air tasking order (ATO) targets are valid.

Refer to JP 2-0, “Doctrine for Intelligence Support to Joint Operations,” and JP 2-01, “Joint Intelligence Support to Military Operations,” for an overview of intelligence functions and requirements.

Intentionally Blank

CHAPTER III

AIRSPACE CONTROL

"In order to assure an adequate national defense, it is necessary — and sufficient — to be in a position in case of war to conquer the command of the air."

GEN Giulio Douhet
The Command of the Air, 1924

1. General

The primary goal of airspace control is to enhance the effectiveness of air, land, maritime, and special operations forces in accomplishing the JFC's objectives. **Airspace control should maximize the effectiveness of combat operations without adding undue restrictions and with minimal adverse impact on the capabilities of any Service or functional component.** All components of the joint force share the AOR and/or JOA airspace for offensive and defensive operations. Because of this, airspace control can become very complex. The timely exchange of information over reliable, secure, interoperable means of communication is needed to coordinate and deconflict joint counterair operations.

Execution of the ACP is accomplished through ACOs that provide specific airspace control procedures applicable for defined periods of time. ACOs are designed to deconflict and identify all airspace users as well as eliminate fratricide.

2. Airspace Control and Coordination Procedures

Standardized airspace control procedures and close coordination reduce confusion and contribute to the overall effectiveness of the counterair mission. **The ACA recommends and JFC approves the boundaries within which airspace control is exercised and provides priorities and restrictions regarding its use.** Coordination with host nation active DCA systems is essential.



Airspace control integrates different airspace users and provides them with responsive and timely support.

a. **Airspace control may require a combination of positive and procedural identification (ID) procedures.** Positive ID is a high-confidence ID derived from visual observation, radar observation of point of origin, and/or electronic ID systems. When available, positive ID is used because it provides the most rapid, reliable, and transferable means of identification. Procedural ID is another identification method that relies on a combination of previously agreed upon airspace control measures. It separates airspace users by geography, altitude, and time. Procedural ID can be advantageous for some missions and scenarios, normally in limited airspace areas. For most scenarios a combination of positive and procedural ID techniques would be used to identify friends and foes.

b. Air traffic control facilities and radar control units (Marine tactical air operations center and so forth) will provide flight following and monitoring throughout the airspace control area. The urgent exchange

of information between the air traffic control facilities, radar control units, and airspace users requires reliable voice and data nets, radars, identification friend or foe, and selective ID features. **Accurate and timely ID enhances engagement of enemy aircraft and missiles, conserves friendly resources, and reduces risk to friendly forces.**

See JP 3-52, “Doctrine for Joint Airspace Control in the Combat Zone,” and JP 3-56.1, “Command and Control for Joint Air Operations,” for further detail on airspace control methods.

c. **Airspace control functions must be closely coordinated with joint counterair operations.** The ACP facilitates joint counterair operations as well as all other AOR and/or JOA operations which might otherwise conflict. Prioritization and integration of these operations are essential. The ACP is designed to identify all airspace users, facilitate the engagement of hostile air and missile threats, and expedite the safe passage of friendly and neutral forces.

CHAPTER IV

OFFENSIVE COUNTERAIR OPERATIONS

"After all, the great defense against aerial menace is to attack the enemy's aircraft as near as possible to their point of departure."

Winston Churchill
Memo of 5 Sept 1914

1. General

Executing and sustaining OCA operations are high-priority goals as long as the enemy has the capability to threaten friendly forces. The success of these operations will benefit all forces across the entire range of military operations. These operations reduce the risk of air and missile attacks, allowing friendly forces to focus on their mission objectives.

as current as possible based on the latest intelligence information. Target defenses, to include active and passive systems, should also be evaluated to determine vulnerability. Connectivity among collection sensors, C2 platforms, and offensive assets is critical for responding to these targets. **Commanders should consider the following target sets for OCA operations.**

2. OCA Targets

OCA targets should be attacked on the surface or as close to their source as possible; however, targets may be sought and attacked wherever found. The JFC's guidance and objectives, coupled with a theater-level IPB, determine target selection and priority. Target identification and planning should start prior to hostilities. The target data should be

a. Airfields and Operating Bases. Destruction of hangars, shelters, maintenance facilities, and other storage areas as well as petroleum, oils, and lubricants will reduce the enemy's capability to generate aircraft sorties. **Runway or taxiway closures often prevent use of the airfield for short periods,** thus preventing subsequent takeoffs and forcing returning aircraft to more vulnerable or distant locations. Direct attacks on crews and maintenance personnel facilities may reduce



Attacking OCA targets as close to their source as possible reduces the risk of air and missile attacks.

sortie generation rates longer than attacks on the infrastructure of airfields and operating bases.

b. Aircraft. Target aircraft include enemy fixed-wing and rotary-wing aircraft (manned or unmanned), whether in flight or on the ground. Destruction of these targets will limit enemy attacks, observation, and defensive capability.

c. Missiles and Support Infrastructure. **OCA operations are most effective when conducted against theater missiles before launch.** The preemptive destruction of missiles, launch facilities, storage facilities, and other support infrastructure greatly limits subsequent TM attacks. OCA assets may also be rapidly retasked to destroy time-sensitive targets such as mobile launchers.

d. C4I Systems. C4I systems are **critical to the employment of forces and should be given a high priority during OCA operations.** Intelligence gathering, warning, and control systems include ground-controlled intercept, early warning and acquisition radars, space-based systems, and other sensors as well as their supporting facilities. Although surface-based radars and sensors are movable, the time required to redeploy them is normally lengthy compared with the systems they control. Destruction of such sites could substantially reduce the enemy's capability to detect, react, and attack friendly forces. These targets may have hardened facilities, but certain components may be exposed during operation. **Fixed site, hardened facilities are usually easier to locate than mobile systems.** Attacks against fixed sites can also be preplanned with appropriate weapons to increase the probability of kill. Attacks should also be considered against airborne, maritime, and ground-based C4I platforms, as well as against systems supporting space-based platforms.

e. Naval Platforms. Enemy naval platforms capable of employing aircraft or

theater missiles are also important OCA targets. Destruction of these platforms limits the enemy's ability to conduct air and missile attacks in the littoral or possibly influence vital sea lines of communications.

f. Air Defense Systems and Enemy Forces. Disruption or destruction of enemy air defense systems and the personnel who control, maintain, and operate them may render these systems ineffective.

3. OCA Operations

OCA operations normally occur over enemy territory to achieve counterair objectives. Accurate and timely intelligence is needed to locate and attack OCA targets as well as their supporting elements. Attempts will be made to destroy selected targets on the ground; however, targets may be destroyed before, during, and after launch or takeoff. Tasked units should have the latitude to plan, coordinate, and execute their operations. OCA may include operations involving aircraft, missiles, SOF, surface fires, or ground forces from the joint force components.

OCA missions may be preplanned or immediate. Preplanned missions rely on continuous and accurate intelligence to identify targets at particular locations and times. Normally, the ATO tasks apportioned forces to execute these preplanned missions. Immediate missions are conducted against unexpected, mobile, or time-sensitive targets that fall outside the ATO cycle and require rapid action. Minutes often define the timeline when these targets are vulnerable to attack. Unexpected, mobile, or time-sensitive targets cannot be effectively attacked unless responsiveness and flexibility is built into the ATO. The ATO should make provisions for airborne alert, designated divert aircraft, and on-call surface fire support.

Attacks within a surface AO short of the fire support coordination line (FSCL) are

DESERT STORM OCA

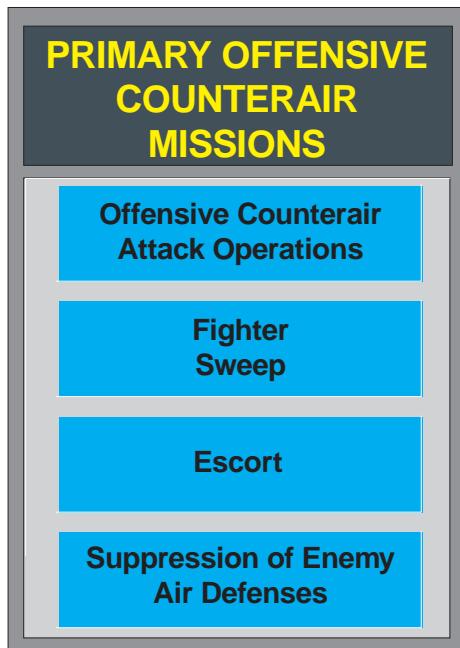
The Iraqi Air Force posed both a defensive threat to Coalition air operations and an offensive threat to Coalition forces in the region. In addition to a defensive capability, the Iraqi Air Force had a chemical weapons delivery capability and had used precision-guided missiles.

Initial targeting of the Iraqi Air Force during Operation DESERT STORM emphasized the suppression of air operations at airfields by cratering and mining runways, bombing aircraft, maintenance and storage facilities, and attacking [command, control, and communications] facilities. Coalition planners anticipated the Iraqis initially would attempt to fly large numbers of defensive sorties, requiring an extensive counterair effort. Air commanders also expected the Iraqis to house and protect aircraft in hardened shelters. An attempt to fly some aircraft to sanctuary in a neighboring country also was expected, although the safe haven was thought to be Jordan, rather than Iran.

SOURCE: Final Report to Congress
Conduct of the Persian Gulf War, April 1992

controlled by the supported land force commander. Beyond the FSCL, coordination and restrictive measures are used to avoid conflicting or redundant operations. Forces attacking targets beyond the FSCL must coordinate with all affected commanders to allow necessary reaction to avoid fratricide, both in the air and on the ground. Generally the ATO process provides sufficient coordination for preplanned targets beyond the FSCL. However, certain time-sensitive targets and other targets of opportunity may be acquired and must be attacked quickly using information provided through the battlefield coordination detachment or other liaison element as practical. Although land force commanders establish an FSCL as a permissive fire support coordination measure, the coordination of actual attacks with all affected commanders is important to prevent fratricide. Under exceptional circumstances, the inability to perform such coordination will not preclude attacking the target, with the commander of the attacking force assuming the increased risk of fratricide.

a. **OCA Attack Operations.** These attack operations are offensive actions against surface targets which contribute to the enemy's air power capabilities. The objective of attack operations is to prevent the hostile



Primary OCA missions are shown in Figure IV-1 and listed below.

Figure IV-1. Primary Offensive Counterair Missions

use of aircraft and missile forces by attacking targets such as missile launch sites, airfields, naval vessels, C2 nodes, munitions stockpiles, and supporting infrastructure. Attack operations may be performed by fixed- or rotary-wing aircraft, surface-to-surface fires, SOF, or ground forces.

b. Fighter Sweep. The fighter sweep is an offensive mission by fighter aircraft to seek out and destroy enemy aircraft, cruise missiles, or targets of opportunity in an allotted sector.

c. Escort. Escorts are protection sorties flown against enemy aircraft and air defense systems in support of air operations over enemy territory. Escort aircraft are normally assigned to protect specific groups of friendly aircraft while en route to or from a target area (for example, for air interdiction or strategic attack). Escort aircraft may also protect airlift, air-to-air refueling, EW, C2, search and rescue, and SOF infiltration/exfiltration aircraft. Escort may also be used as a DCA mission, as in the case of high value airborne asset protection. See Chapter V, “Defensive Counterair Operations,” for further detail.

d. Suppression of Enemy Air Defenses (SEAD). SEAD operations destroy,

neutralize, or temporarily degrade enemy surface-based air defenses in a specific area by destructive or disruptive means. **SEAD requirements vary according to mission objectives, system capabilities, and threat complexity.**

- **SEAD Resources.** SEAD resources may include specialized aircraft, multirole aircraft, helicopters, air-to-surface and surface-to-surface missiles, artillery, SOF, and UAVs. Specialized aircraft have the ability to destroy, neutralize, or degrade enemy air defense assets using weapon systems such as precision-guided munitions, antiradiation missiles, and on-board jammers.
- **SEAD Operations.** SEAD operations fall into three categories: AOR and/or JOA air defense system suppression, localized suppression, and opportune suppression. AOR and/or JOA air defense system suppression contributes to air superiority by disabling enemy air defense systems or major capabilities of those systems. Localized suppression operations normally have specified time and space limitations because they support specific operations or missions.



Fighter aircraft may perform a fighter sweep to seek out and destroy enemy aircraft or targets of opportunity.

SEAD IN “THE STORM”

On the morning of 17 January [1991], an EA-6B from Marine Tactical Electronic Warfare Squadron Two provided electronic warfare support for Marine, Navy and Royal Air Force strike packages attacking strategic targets at the Al-‘Amarah and Az-Zubayr command and control sites, as well as the Az-Zubayr railroad yards and the Al-Basrah bridges across the Tigris River. These targets were heavily defended by interlocking belts of surface-to-air missiles (SAMs) and antiaircraft artillery (AAA). Iraqi fighters also were a potential threat. This was a dangerous mission — among the first daylight strikes of the war. Long before they approached the targets, the EA-6B crew started to work. The first enemy radar that came up was quickly jammed. Shortly after, however, additional radars were noted searching for the strike groups. Jamming of Iraqi long-range early warning radars allowed the strikers to approach undetected. However, Iraqi ground control intercept radars as well as target tracking radars simultaneously began probing the Coalition strike package. The EA-6B crew quickly introduced intense electronic jamming into all modes of the Iraqi air defense system, which prevented the vectoring of enemy fighters. They also forced SAM and AAA systems into autonomous operation, uncoordinated by the command and control system which greatly reduced their ability to locate and track Coalition aircraft. To accomplish this, the EA-6B crew did not attempt evasive action but placed themselves into a predictable, wings-level orbit which highlighted their position amidst the beaconing (sic) and jamming strobes of the enemy radars. The severe degradation to radio transmissions caused by jamming interference limited the EA-6Bs ability to receive threat calls, making them vulnerable to enemy aircraft. Nonetheless, the crew remained on station, enabling all Coalition aircraft to strike the targets, accomplish the missions, and return home without loss or damage.

SOURCE: 3rd Marine Aircraft Wing Award Citation
cited in DOD Final Report to Congress,
Conduct of the Persian Gulf War, April 1992

Opportune suppression includes self-defense and offensive attacks against enemy air defense targets of opportunity. SEAD should be a part of all planning of air and missile operations.

For more detailed information on SEAD categories, refer to JP 3-01.4, “Joint Tactics, Techniques, and Procedures for Joint Suppression of Enemy Air Defenses (J-SEAD).”

of friendly resources and systems. **The choice of a particular weapon system may depend upon the situation, target characteristics, threats, weather, and available intelligence.** Whenever possible, commanders should employ weapon systems that minimize the risk to friendly forces. The primary offensive systems are shown in Figure IV-2 and include the following.

a. **Aircraft.** Using aircraft for OCA provides the advantages of long-range, high payload, ability to deliver precision weapons, night and all-weather capability, self-defense capability, air-refueling capability, and flexibility of a manned system.

4. OCA Resources

The effectiveness of OCA operations depends on the availability and capabilities



Figure IV-2. Primary Offensive Counterair Systems

b. **Unmanned Aerial Vehicles.** UAVs are used in OCA operations to perform such functions as surveillance, reconnaissance, deception, jamming, and decoy of enemy forces and air defense systems. UAVs are preprogrammed or remotely piloted and often provide intelligence to friendly forces while providing confusing and erroneous information to the enemy. Furthermore, UAVs may cause the enemy to expend weapons and other resources to evaluate or attack them.

c. **Missiles.** Missiles which may be used for OCA include surface-to-surface, air-to-surface, and air-to-air guided missiles as well as air-, land-, and sea-launched cruise missiles.

d. **Special Operations Forces.** SOF have the capability to conduct direct action, provide terminal guidance, observe attacks, and collect intelligence. SOF may strike enemy targets that are normally beyond the capability of other munitions. Examples include targets concealed by difficult terrain, underground facilities, or “safe haven” targets. SOF may also be used to locate, positively identify, and designate targets for other forces. Coordination with the SOLE is critical to deconflict operations, protect forces, and avoid fratricide.

e. **Surface Fire Support.** Artillery and naval surface fire support may be used during OCA operations if enemy targets are within range. Surface fire may provide the safest and fastest method of attacking targets.

f. **Armed Helicopters.** These assets may be placed in direct support of the JFACC. The JFACC will normally task attack helicopters made available by the JFC as a maneuver unit, with mission type orders, when employing them to support OCA attack operations.

g. **C4I Systems.** C4I support for OCA includes early warning and surveillance systems, satellites, radars, identification systems, communications systems, and surface-, air-, and space-based sensors. These systems provide warning, intelligence, targeting data, and C2.

5. OCA Planning Considerations

Planning should begin with the IPB and the development of an OCA plan. The plan is based on the JFC’s assessment of the overall air and missile threat, target data base, ROE, objectives, priorities, missions, and available friendly forces. **The JFACC is responsible for the planning and execution of OCA operations.**

a. IPB enhances the commanders' ability to find targets, task attack forces, and assess their effectiveness. Considerations include the enemy's air and missile operating areas, signatures, capabilities, and deployment and employment procedures. IPB attempts to provide a comprehensive picture of the enemy activity, terrain, and weather within the theater and/or JOA. This effort requires continuous surveillance.

b. There are three important aspects of the planning process: setting clearly defined objectives, determining targets and effects that support the objectives, and unity of effort. All planning levels must understand the JFC's objectives to ensure a coordinated effort. Proper sequencing and prioritizing of the objectives should provide economy of force and maximize synergy. Targeting is the process of selecting targets and matching the appropriate response to them, taking account of operational requirements and capabilities. The following seven criteria are normally used to establish target priorities.

- **Objective.** The degree to which targets satisfy the OCA objectives.
- **Threat.** The threat posed by the enemy target, determining the urgency or the need to counter it.
- **Expected Effect.** The degree of degradation to enemy capability which can be reasonably expected to result from a successful attack.
- **Delay in Effect.** The time between the initial engagement and the desired effect.
- **Risk Calculation.** The probable risk involved for the attacking forces.

- **Forces Available.** The number and type of forces which must be provided to achieve the desired result.
- **Assessment.** The ability to determine the effect of an attack on enemy capability.

6. Execution of OCA Operations

The preferred method of countering air and missile threats is to use OCA operations to destroy or disrupt them prior to launch. These operations are preferably conducted over enemy territory. The JFC assigns missions and directs coordination and support relationships among subordinate commanders. The JFC will normally assign the responsibility for planning and executing theater- and/or JOA-wide OCA operations to the JFACC. The JFACC normally exercises OPCON over assigned and attached forces. The JFC may apportion additional component capabilities and/or forces to the JFACC to support theater- and/or JOA-wide OCA operations. The JFC determines the most appropriate command authority, but typically air and naval forces provide air sorties TACON and land forces provide fire support and attack helicopters in direct support.

- a. OCA operations rely on C4I systems for deconfliction with other operations. Operations against fixed targets should emphasize preplanning, accurate and timely intelligence, target selection, time over target, and published ROE. This emphasis enhances mission effectiveness while minimizing fratricide and interference with other operations. OCA operations against mobile or time-sensitive targets (SAMs, ballistic and cruise missile launchers) require integrated C4I systems to assign the optimum weapon system.

- b. Centralized OCA planning is fundamental to achieving objectives, but does not preclude individual components and units from taking actions to counter air and missile threats for the accomplishment of their missions or protection of their forces. Reliable and secure C4I systems are needed to ensure timely and accurate planning, response, close coordination, and integration. These systems represent the common threads that tie all AOR and/or JOA operations together and they must be aggressively protected from enemy interference.

CHAPTER V

DEFENSIVE COUNTERAIR OPERATIONS

"Find the enemy and shoot him down, anything else is nonsense."

Manfred Baron von Richofen
1917

1. General

DCA operations (Figure V-1) employ a mix of weapon and sensor systems from all components to protect US or multinational forces, assets, population centers, and interests from enemy air and missile threats. **The JFC**

establishes and the AADC implements theater- and/or JOA-wide defense priorities through promulgation of a joint area air defense plan.

- a. The AADC develops the area air defense plan in coordination with the joint force and



Figure V-1. Defensive Counterair Operations

component staffs. The plan integrates DCA capabilities throughout the theater and/or JOA.

b. The area air defense plan reflects the priorities established by the JFC. Appropriate component commanders provide surface-, air-, and sea-based active defense capabilities and forces.

DCA operations consist of active and passive air defense measures linked together with a joint C4I infrastructure. The AADC is responsible for integrating the capabilities of different components to construct a C4I architecture which will negate the air and missile threat. Because of their time-sensitive nature, DCA operations require a streamlined decision and coordination process.

"All warfare is based on deception."

Sun Tzu, The Art of War
c. 500 BC

2. Passive Air Defense

Passive air defense provides individual and collective protection for friendly forces and critical assets and is the responsibility of every commander in the joint force. It includes measures, other than active air defense, taken to minimize the effectiveness of attacking aircraft and missiles. **The AADC is responsible for timely warning of attack**, which initiates some of the passive defense measures. Warnings may be either general or specific. General warnings indicate that attacks are imminent or have occurred, while specific warnings signify that only certain units or areas are in danger of attack. Passive measures do not involve the employment of lethal weapons, but they do improve survivability. Depending on the situation and time available, a variety of measures may be taken to improve the defensive posture of friendly forces and assets. Some measures

should be planned for and practiced during peacetime. Passive measures include the following.

a. **Camouflage, Concealment, and Deception (CCD).** CCD deny accurate location and targeting of friendly assets by misleading and presenting false information to the enemy. These measures reduce vulnerability of friendly assets by limiting their exposure to targeting. They may be conducted continuously or in response to warning. Timely intelligence concerning the overflight of enemy satellite and aircraft collection systems is important to the effort. CCD may cause the enemy to abort, delay, or modify an attack, or deplete resources by attacking false targets.

b. **Hardening.** Valuable assets and their shelters are hardened to protect against physical attack, electromagnetic pulse, and transient radiation. Hardening measures should be accomplished during peacetime whenever possible.

c. **Reconstitution.** Reconstitution is the capability for rapid repair of damage resulting from enemy attacks and the return of damaged units to combat readiness. Examples of reconstitution include the repair of airfield operating surfaces and aircraft, the removal of mines and unexploded ordnance, and restoring essential services such as C4I systems, power, and fuel.

d. **Nuclear, Biological, and Chemical (NBC) Defensive Equipment and Facilities.** NBC defensive equipment and facilities protect against the effects of WMD by providing contamination detection, shelter, and decontamination. Individual protective equipment allows vital functions to continue in the NBC environment.

e. **Redundancy.** Duplication of critical capabilities enables vital systems to continue operating when critical nodes have been

destroyed or damaged. Redundancy includes dual, contingency, or backup capabilities that can assume primary mission functions, in whole or in part, upon failure or degradation of the primary system.

f. Detection and Warning Systems.

Timely detection and warning of air and missile threats provide maximum reaction time for friendly forces to seek shelter or take appropriate action. Connectivity for communications and sensor systems is vital for accurate and timely warning. A combination of air-, space-, and surface-based detection and communication assets should be established to maximize detection and warning. “All clear” procedures should also be established to notify forces when a warning is false or the threat no longer exists.

g. Dispersal. Dispersal complicates the enemy’s ability to locate, target, and attack friendly assets.

h. Mobility. Mobility reduces vulnerability and increases survivability by complicating enemy surveillance, reconnaissance, and targeting.

and rotary-wing aircraft (manned and unmanned) **and missiles.** Missiles pose a significant challenge since they are often difficult to detect and destroy after launch. They can be employed from long ranges, in all types of weather, and without the support and manpower required for aircraft. Ballistic missiles, whether employed in high or low altitude trajectories, also present unique problems, including high velocities and short reaction time.

b. Active Air Defense Operations.

Successful active air defense requires the integration of all appropriate defensive forces and weapon systems within a theater or JOA.

Active air defense operations are designed to protect selected assets and forces from attack by destroying enemy aircraft and missiles while in flight. These operations are subject to the weapons control procedures established by the AADC. When possible, the AADC should arrange a layered defense plan to allow multiple engagement opportunities for friendly forces. EW may also be employed to disrupt or destroy guidance systems. Active air defense operations include the following.

3. Active Air Defense

Active air defense is direct defensive action taken to destroy, nullify, or reduce the effectiveness of hostile air and missile threats against friendly forces and assets. Integrated employment of air-to-air and surface-to-air weapon systems through coordinated detection, identification, assessment, interception, and engagement of air and missile threats is necessary to counter enemy attacks. Rapid, reliable, and secure means of identification within the airspace control area are critical to the survival of friendly forces.

a. Active Air Defense Targets. The primary active air defense targets are **fixed-**

- Area Defense.** Area defense uses a combination of weapon systems (e.g., aircraft and SAMs) to defend broad areas.

- Point Defense.** Point defense protects limited areas, normally in defense of vital elements of forces or installations. For example, a SAM unit positioned to protect an airfield is considered point defense.

- Self-Defense.** Self-defense operations allow friendly units to defend themselves against direct attacks or threats of attack through the use of organic weapons and systems. The right of self-defense is inherent to all ROE and weapons control procedures.

- **High Value Airborne Asset (HVAA) Protection.** HVAA protection defends airborne national assets, which are so important that the loss of even one could seriously impact US warfighting capabilities. Furthermore, the political ramifications of destroying one of these assets could provide the enemy with a tremendous propaganda victory. HVAA aircraft include Airborne Warning and Control System, Rivet Joint, Joint Surveillance Target Attack Radar System, and Compass Call. HVAA protection is performed by fighter aircraft using various combat air patrol or escort techniques.

c. Active Air Defense Systems. The integration of active air defense systems provides efficient control and exchange of real-time information to all defensive forces and resources. **Components must work in unison and provide a mix of dedicated weapon systems** to maximize the effectiveness of air defense operations. When components work in unison, the limitations of some surveillance, control, and weapon systems may be balanced by the advantages of other systems. Assets used in conducting active air defense may include fixed- and

rotary-wing aircraft, surface-to-air weapons, and C4I systems.

4. DCA Planning Considerations

DCA planning may be conducted at multiple levels. It begins during peacetime with the IPB and the development of an area air defense plan. The JFC will provide the guidance, priorities, taskings, and concept of operations for component commanders and the staff. All components and the joint force staff will participate in the planning process required to develop the area air defense plan.

Continuous surveillance is crucial for early detection, identification, and prediction of areas of attack from air and missile threats. The AADC, in coordination with the joint force J-2, J-3, and J-6, will develop the plans and communications architecture for warning affected forces and cueing appropriate systems to the threat.

5. Execution of DCA Operations

The overall DCA effort should be centrally planned and should integrate forces and capabilities from all components. The JFC defines missions and may apportion



Active air defense assets include fixed- and rotary-wing aircraft.



Successful active air defense requires the integration of all appropriate defensive forces and weapon systems within an AOR and/or JOA.

component capabilities and/or forces to the AADC to support theater- and/or JOA-wide DCA operations. The JFC determines the most appropriate command authority over forces made available, but normally air sorties are provided TACON, while surface-based active defense forces are provided in direct support. Regardless of the command relationship, all active defense forces made available are subject to ROE, airspace, weapons control measures, and fire control orders established by the AADC and approved by the JFC. As the supported commander for theater- and/or JOA-wide DCA, the AADC will be granted the necessary command authority to deconflict and control engagements and to exercise real-time battle management.

The JFC normally authorizes the AADC to integrate DCA efforts of the joint force and to develop engagement procedures for all active air and missile defense forces and capabilities assigned, attached, and supporting the joint force. However, this does not restrict commanders' authority to take those immediate actions required to defend their forces. Since defensive systems and assets are limited, total protection for all friendly forces and interests may not be available. In

some cases, units may need to provide self-defense by using organic weapons and passive measures when possible.

Execution of air defense operations requires continuous surveillance of the theater and/or JOA. Integration of sensors provides a complete, timely, and common operational picture. Tactical warning initiates some passive measures and provides initial cueing for defense forces. The AADC should establish a reporting system capable of near real time production and dissemination of tracking data. Track production is a sequential process which begins with the surveillance function. After detection, tracks are identified, labeled, and disseminated as rapidly as possible. Detailed and timely track data permits C2 systems to evaluate the track and determine its significance. Defense forces then engage hostile tracks or allow the passage of friendly tracks.

a. **ROE.** For DCA to be effective, ROE must be established, disseminated, and understood. The components and supporting commanders are responsible for ensuring compliance. Unless ROE are already established by higher authority or an existing plan, **the JFC is responsible for establishing**

and implementing the ROE. The JFC should request inputs and recommendations from the JFACC, AADC, and other subordinate commanders. Centrally planned identification and engagement procedures are vital for avoiding duplication of effort and fratricide. However, since ballistic missiles have a distinct flight profile, ROE for this threat should allow for immediate engagement.

b. Airspace Control for DCA Operations. The problem of distinguishing friendly, neutral, and enemy assets while employing various weapon systems is a complex task. **The AADC and ACA establish procedures within the airspace control system to positively identify all airborne assets, reduce delays in operations, and prevent fratricide.** Positive ID is a method of employing electronic and visual means to positively identify tracks within an airspace. Positive ID of tracks is normally the preferred method of operation. In the absence of positive ID, procedural ID means are used. Procedural ID permits the safe passage of non-hostile aircraft and enables the employment of defensive systems. Integration, coordination, and airspace control procedures enhance the synergistic capabilities of various weapon systems. **Airspace control measures normally include fighter engagement zones, missile engagement zones, and joint engagement zones (JEZs).** These zones are portions of airspace in which the responsibility for engagement rests with commanders of a particular weapon system or systems under their control. When airspace control measures include a JEZ, the commander uses aircraft and SAM systems concurrently to engage positively identified threats with the optimum system available.

c. Weapon Systems Employment for DCA Operations. Early warning of hostile air and missile actions is vital for a layered defense. **DCA operations should attempt**

to intercept intruding enemy aircraft and missiles as early as possible. Although DCA operations are reactive in nature, they should be conducted as far from the friendly operational area as feasible. To ensure attrition of enemy air and missile threats, **the engagement process must continue throughout the approach to, entry into, and departure from the friendly operational area.**

- **Surface-to-Air Weapon Systems.** Surface-to-air weapons are employed either in area, point, or self-defense operations. These weapons offer significant firepower and rapid response. Their effectiveness requires a reliable, interoperable interface with aircraft operations. Identification and communication processes that preclude engagement of friendly aircraft and reduce unnecessary expenditure of weapons are also required. Integration of these capabilities strengthens mutual support and provides the best overall defensive coverage. The optimal capabilities of each weapon system occur at different ranges and altitudes. **For maximum effectiveness, all surface-to-air capabilities and forces assigned, attached, and supporting the joint force are included in the area air defense plan** and are subject to the procedures established by the AADC. Although these systems are subject to the AADC's procedures and weapons control measures, they maintain the right of self-defense.

- **Weapons Control Status.** Weapons control of surface-to-air units is expressed as a status declared for a particular area and time. There are three types of weapons control status. "Weapons free" is a control order whereby weapons systems may be fired at any target not positively recognized as friendly. "Weapons tight" is a control

order whereby weapons systems may be fired only at targets recognized as hostile. Finally, “weapons hold” is a control order whereby weapons systems may only be fired in self-defense or in response to a formal order.

• Fire Control Orders. Fire control orders are given to direct or to inhibit firing by surface-to-air weapons units based on rapidly changing battle situations. There are three primary fire control orders. The “engage” order directs or authorizes units and weapon systems to fire on a designated target. The “cease engagement” order directs units to stop the firing sequence against a designated target. “Hold fire” is an emergency order used to stop firing. Missiles already in flight must be prevented from intercepting, if technically possible.

- **Air-to-Air Fighter Interception.** Fighter aircraft performing DCA or OCA missions may be tasked to respond to the detection of hostile, potentially hostile, or unknown airborne targets. Aircraft normally operate under positive control of a controlling agency, but may initiate and conduct intercepts autonomously when authorized or when the environment or depth of the operation precludes positive control. In this instance, the controlling agency may provide broadcast information on target information to all affected fighters. Air-to-air fighters operate with enhanced fire control radar and beyond visual range weapons that allow multiple targets to be engaged at once. The use of permissive ROE allows maximum use of beyond visual range weapons while engaging hostile targets well before reaching threatening ranges.

Intentionally Blank

APPENDIX A REFERENCES

The development of JP 3-01 is based upon the following primary references.

1. JP 1, “Joint Warfare of the Armed Forces of the United States.”
2. JP 0-2, “Unified Action Armed Forces (UNAAF).”
3. JP 1-01, “Joint Publication System, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program.”
4. JP 1-02, “Department of Defense Dictionary of Military and Associated Terms.”
5. JP 2-0, “Doctrine for Intelligence Support to Joint Operations.”
6. JP 2-01, “Joint Intelligence Support to Military Operations.”
7. JP 2-01.1, “Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting.”
8. JP 3-0, “Doctrine for Joint Operations.”
9. JP 3-01.1, “Aerospace Defense of North America.”
10. JP 3-01.2, “Joint Doctrine for Theater Counterair Operations.”
11. JP 3-01.3, “Doctrine for Air Defense From Overseas Land Areas.”
12. JP 3-01.4, “Joint Tactics, Techniques, and Procedures for Joint Suppression of Enemy Air Defenses (J-SEAD).”
13. JP 3-01.5, “Doctrine for Joint Theater Missile Defense.”
14. JP 3-05, “Doctrine for Joint Special Operations.”
15. JP 3-09, “Doctrine for Joint Fire Support.”
16. JP 3-14, “Joint Doctrine; Tactics, Techniques, and Procedures for Space Operations” (in development).
17. JP 3-16, “Joint Doctrine for Multinational Operations.”
18. JP 3-51, “Electronic Warfare in Joint Military Operations” (in revision).
19. JP 3-52, “Doctrine for Joint Airspace Control in the Combat Zone.”

Appendix A

20. JP 3-56.1, “Command and Control for Joint Air Operations.”
21. JP 5-0, “Doctrine for Planning Joint Operations.”
22. Air Force Manual 1-1, Volumes I and II, “Basic Aerospace Doctrine of the United States Air Force.”
23. Air Force Doctrine Document, 2-1.1, “Counterair Operations,” 1 September 1996 (final draft).
24. Air Force Doctrine Document, 2-5.4, “Intelligence.”
25. Allied Tactical Publication 42, “Counter Air Operations.”
26. Field Manual 100-5, “Operations.”
27. Field Manual 44-100, “US Army Air Defense Operations” (final draft).
28. Fleet Marine Force Manual 5-50, “Antiair Warfare.”
29. Naval Doctrine Publication 1, “Naval Warfare.”
30. Naval Warfare Publication 3-01.1, “Antiair Warfare.”

APPENDIX B ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to the United States Joint Forces Command Joint Warfighting Center, Attn: Doctrine Division, Fenwick Road, Bldg 96, Fort Monroe, VA 23651-5000. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent for this publication is the US Air Force. The Joint Staff doctrine sponsor for this publication is the Director for Operational Plans and Interoperability (J-7).

3. Supersession

This publication supersedes JP 3-01.2, 1 April 1986, "Joint Doctrine for Theater Counterair Operations," and JP 3-01.3, 23 May 1964, "Doctrine for Air Defense from Overseas Land Areas," with Interim Change 1.

4. Change Recommendations

- a. Recommendations for urgent changes to this publication should be submitted:

TO: HQ AFDC DET 1 Langley AFB VA//CC//
INFO: JOINT STAFF WASHINGTON DC//J7-JDD//

Routine changes should be submitted to the Director for Operational Plans and Interoperability (J-7), JDD, 7000 Joint Staff Pentagon, Washington, DC 20318-7000.

- b. When a Joint Staff directorate submits a proposal to the Chairman of the Joint Chiefs of Staff that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Military Services and other organizations are requested to notify the Director, J-7, Joint Staff, when changes to source documents reflected in this publication are initiated.

- c. Record of Changes:

CHANGE NUMBER	COPY NUMBER	DATE OF CHANGE	DATE ENTERED	POSTED BY	REMARKS
---------------	-------------	----------------	--------------	-----------	---------

5. Distribution

- a. Additional copies of this publication can be obtained through Service publication centers.
- b. Only approved pubs and test pubs are releasable outside the combatant commands, Services, and Joint Staff. Release of any classified joint publication to foreign governments or foreign nationals must be requested through the local embassy (Defense Attaché Office) to DIA Foreign Liaison Office, PSS, Room 1A674, Pentagon, Washington, DC 20301-7400.
- c. Additional copies should be obtained from the Military Service assigned administrative support responsibility by DOD Directive 5100.3, 1 November 1988, "Support of the Headquarters of Unified, Specified, and Subordinate Joint Commands."

By Military Services:

Army: US Army AG Publication Center SL
1655 Woodson Road
Attn: Joint Publications
St. Louis, MO 63114-6181

Air Force: Air Force Publications Distribution Center
2800 Eastern Boulevard
Baltimore, MD 21220-2896

Navy: CO, Naval Inventory Control Point
700 Robbins Avenue
Bldg 1, Customer Service
Philadelphia, PA 19111-5099

Marine Corps: Marine Corps Logistics Base
Albany, GA 31704-5000

Coast Guard: Coast Guard Headquarters, COMDT (G-OPD)
2100 2nd Street, SW
Washington, DC 20593-0001

- d. Local reproduction is authorized and access to unclassified publications is unrestricted. However, access to and reproduction authorization for classified joint publications must be in accordance with DOD Regulation 5200.1-R.

GLOSSARY

PART I — ABBREVIATIONS AND ACRONYMS

AADC	area air defense commander
ACA	airspace control authority
ACO	airspace control order
ACP	airspace control plan
AO	area of operations
AOR	area of responsibility
ATO	air tasking order
C2	command and control
C4I	command, control, communications, computers, and intelligence
CCD	camouflage, concealment, and deception
CINCNORAD	Commander in Chief, North American Aerospace Defense Command
DCA	defensive counterair
EW	electronic warfare
FSCL	fire support coordination line
HVAA	high value airborne asset
ID	identification
IO	information operations
IPB	intelligence preparation of the battlespace
J-2	Intelligence Directorate of a joint staff
J-3	Operations Directorate of a joint staff
J-4	Logistics Directorate of a joint staff
J-5	Plans Directorate of a joint staff
J-6	Command, Control, Communications, and Computer Systems Directorate of a joint staff
JAOC	joint air operations center
JEZ	joint engagement zone
JFACC	joint force air component commander
JFC	joint force commander
JOA	joint operations area
JTCB	joint targeting coordination board
NBC	nuclear, biological, and chemical
NORAD	North American Aerospace Defense Command

Glossary

OCA	offensive counterair
OPCON	operational control
ROE	rules of engagement
SAM	surface-to-air missile
SEAD	suppression of enemy air defenses
SOF	special operations forces
SOLE	special operations liaison element
TACON	tactical control
TM	theater missile
UAV	unmanned aerial vehicle
USCINCSPACE	Commander in Chief, US Space Command
WMD	weapons of mass destruction

PART II — TERMS AND DEFINITIONS

active air defense. Direct defensive action taken to destroy, nullify, or reduce the effectiveness of hostile air and missile threats against friendly forces and assets. It includes the use of aircraft, air defense weapons, electronic warfare, and other available weapons. (Upon approval of this publication, this term and its definition will modify the existing term and its definition and will be included in JP 1-02.)

air defense. All defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (JP 1-02)

airspace control authority. The commander designated to assume overall responsibility for the operation of the airspace control system in the airspace control area. Also called ACA. (JP 1-02)

airspace control order. An order implementing the airspace control plan that provides the details of the approved requests for airspace control measures. It is published either as part of the air tasking order or as a separate document. Also called ACO. (JP 1-02)

airspace control plan. The document approved by the joint force commander that provides specific planning guidance and procedures for the airspace control system for the joint force area of responsibility/joint operations area. Also called ACP. (JP 1-02)

air superiority. That degree of dominance in the air battle of one force over another which permits the conduct of operations by the former and its related land, sea and air forces at a given time and place without prohibitive interference by the opposing force. (JP 1-02)

air supremacy. That degree of air superiority wherein the opposing air force is incapable of effective interference. (JP 1-02)

area air defense commander. Within a unified command, subordinate unified command, or joint task force, the commander will assign overall responsibility for air defense to a single commander. Normally, this will be the component commander with the preponderance of air defense capability and the command, control, and communications capability to plan and execute integrated air defense operations. Representation from the other components involved will be provided, as appropriate, to the area air defense commander's headquarters. Also called AADC. (JP 1-02)

combatant command (command authority). Nontransferable command authority established by title 10 (“Armed Forces”), United States Code, Section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally, this authority is exercised through subordinate joint force commanders and Service and/or functional

Glossary

component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (JP 1-02)

counterair. A mission which integrates offensive and defensive operations to attain and maintain a desired degree of air superiority. Counterair missions are designed to destroy or negate enemy aircraft and missiles, both before and after launch. (Upon approval of this publication, this term and its definition will modify the existing term "counter air" and its definition and will be included in JP 1-02.)

defense in depth. The siting of mutually supporting defense positions designed to absorb and progressively weaken attack, prevent initial observations of the whole position by the enemy, and to allow the commander to maneuver his reserve. (JP 1-02)

defensive counterair. All defensive measures designed to detect, identify, intercept, and destroy or negate enemy forces attempting to attack or penetrate the friendly air environment. Also called DCA. (Upon approval of this publication, this term and its definition will be included in JP 1-02.)

direct support. A mission requiring a force to support another specific force and authorizing it to answer directly the supported force's request for assistance. Also called DS. (JP 1-02)

electronic warfare. Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major

subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support. a. electronic attack. That division of electronic warfare involving the use of electromagnetic, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams) or anti-radiation weapons. b. electronic protection. That division of electronic warfare involving actions taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. electronic warfare support. That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support provides information required for immediate decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES. Electronic warfare support data can be used to produce signals intelligence, both communications intelligence, and electronics intelligence. (JP 1-02)

fires. The effects of lethal or nonlethal weapons. (JP 1-02)

high value airborne asset protection. A defensive counterair mission which defends airborne national assets which are so important that the loss of even one could seriously impact US warfighting capabilities or provide the enemy with significant propaganda value. Examples of high value airborne assets are Airborne Warning and Control System, Rivet Joint, Joint Surveillance and Target Attack Radar System, and Compass Call. Also called HVAA protection. (Upon approval of this publication, this term and its definition will be included in JP 1-02.)

information operations. Actions taken to affect adversary information and information systems while defending one's own information and information systems. Also called IO. (JP 1-02)

intelligence preparation of the battlespace. An analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain for all types of operations. Intelligence preparation of the battlespace builds an extensive data base for each potential area in which a unit may be required to operate. The data base is then analyzed in detail to determine the impact of the enemy, environment, and terrain on operations and presents it in graphic form. Intelligence preparation of the battlespace is a continuing process. Also called IPB. (JP 1-02)

joint force air component commander. The joint force air component commander derives authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component

commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision). Using the joint force commander's guidance and authority, and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties to various missions or geographic areas. Also called JFACC. (JP 1-02)

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02)

joint suppression of enemy air defenses. A broad term that includes all suppression of enemy air defense activities provided by one component of the joint force in support of another. Also called J-SEAD. (JP 1-02)

joint targeting coordination board. A group formed by the joint force commander to accomplish broad targeting oversight functions that may include but are not limited to coordinating targeting information, providing targeting guidance and priorities, and preparing and/or refining joint target lists. The board is normally comprised of representatives from the joint force staff, all components, and if required, component subordinate units. Also called JTCB. (JP 1-02)

joint theater missile defense. The integration of joint force capabilities to destroy enemy theater missiles in flight or prior to launch or to otherwise disrupt the

Glossary

enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense; active missile defense; attack operations; and supporting command, control, communications, computers, and intelligence measures. Enemy theater missiles are those that are aimed at targets outside the continental United States. Also called JTMD. (JP 1-02)

offensive counterair. Offensive operations to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems both before and after launch, but as close to their source as possible. Offensive counterair operations range throughout enemy territory and are generally conducted at the initiative of friendly forces. These operations include attack operations, fighter sweep, escort, and suppression of enemy air defenses. Also called OCA. (Upon approval of this publication, this term and its definition will modify the existing term "offensive counter air operation" and its definition and will be approved for inclusion in the next edition of JP 1-02.)

offensive counterair attack operations. Offensive action in support of the offensive counterair mission against surface targets which contribute to the enemy's air power capabilities. The objective of attack operations is to prevent the hostile use of aircraft and missile forces by attacking targets such as missile launch sites, airfields, naval vessels, command and control nodes, munitions stockpiles, and supporting infrastructure. Attack operations may be performed by fixed or rotary wing aircraft, surface-to-surface weapons, special operations forces, or ground forces. Also called OCA attack ops. (Upon approval of this publication, this term and its definition will be included in JP 1-02.)

operational control. Transferable command authority that may be exercised by

commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON. (JP 1-02)

passive air defense. All measures, other than active air defense, taken to minimize the effectiveness of hostile air and missile threats against friendly forces and assets. These measures include camouflage, concealment, deception, dispersion, reconstitution, redundancy, detection and warning systems, and the use of protective construction. (Upon approval of this publication, this term and its definition will modify the existing term and its definition and will be included in JP 1-02.)

positive control. A method of airspace control which relies on positive identification, tracking, and direction of

aircraft within an airspace, conducted with electronic means by an agency having the authority and responsibility therein. (JP 1-02)

procedural control. A method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures. (JP 1-02)

rules of engagement. Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (JP 1-02)

supported commander. The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans, or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. (JP 1-02)

supporting commander. A commander who provides augmentation forces or other support to a supported commander or who develops a supporting plan. Includes the

designated combatant commands and Defense agencies as appropriate. (JP 1-02)

suppression of enemy air defenses. That activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means. Also called SEAD. (JP 1-02)

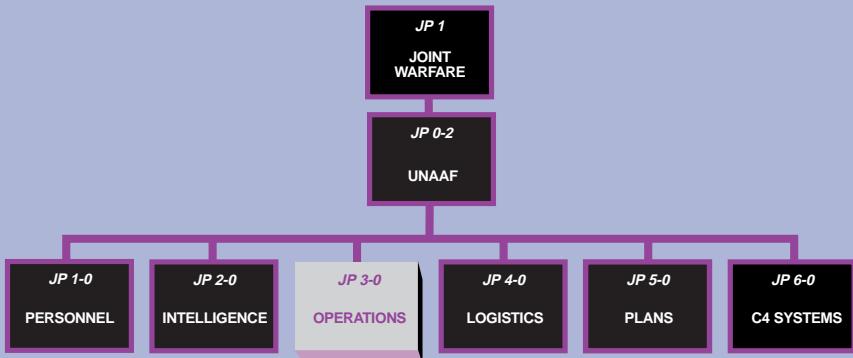
tactical control. Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. Also called TACON. (JP 1-02)

theater missile. A missile, which may be a ballistic missile, a cruise missile, or an air-to-surface missile (not including short-range, non-nuclear, direct fire missiles, bombs, or rockets such as Maverick or wire-guided missiles), whose target is within a given theater of operation. Also called TM. (Upon approval, this term and its definition will modify the existing term and its definition and will be included in the next edition of JP 1-02.)

Glossary

Intentionally Blank

JOINT DOCTRINE PUBLICATIONS HIERARCHY



All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 3-01** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

